

Appl. No. : 10/766,371
Filed : January 27, 2004

AMENDMENTS TO THE CLAIMS

1-12. (Cancelled)

13. (Currently Amended) A device for testing a plurality of semiconductor devices, the plurality of semiconductor devices forming a wafer having a plurality of electrical contacts on a first side, and the plurality of electrical contacts comprising substantially every electrical contact on the first side of the wafer, the testing device comprising:

a housing;

a grid comprising ~~of~~ a plurality of connected frames within the housing;

at least one flexible membrane attached to the grid and extending over a plurality of the connected frames to form a plurality of chambers;

a plurality of contact members positioned on the at least one flexible membrane and configured to provide ~~an~~ electrical connections to ~~a~~ each of the plurality of electrical contacts ~~on the plurality of semiconductor devices to be tested;~~ and

at least one fluid channel connecting at least one of the chambers to a fluid source outside the housing to allow a fluid to flow into at least one of the chambers.

14. (Original) The device of Claim 13, wherein the at least one flexible membrane comprises a plurality of flexible membranes.

15. (Currently Amended) The device of Claim 13, wherein the plurality of semiconductor devices comprise ~~are on an~~ integrated circuit ~~in-board on chip~~ configuration.

16. (Original) The device of Claim 13, wherein the fluid comprises a gas.

17. (Original) The device of Claim 16, wherein the fluid comprises air.

18. (Original) The device of Claim 13, wherein the fluid comprises a liquid.

19. (Original) The device of Claim 13, wherein the fluid source comprises a pump.

20. (Original) The device of Claim 19, wherein the fluid source comprises an electric pump.

21. (Currently Amended) The device of Claim 13, further comprising at least one passage between ~~at least two of the plurality of the~~ chambers allowing the fluid to flow between the at least two chambers.

22. (Currently Amended) The device of Claim 13, further comprising at least one stop connected to the at least one flexible membrane to restrict the at least one flexible membrane from recessing beyond a predefined level.

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23-32. (Cancelled)

33. (Currently Amended) The testing device of Claim 13, wherein the plurality of contact members are bumps.

34. (Currently Amended) The testing device of Claim 13, wherein the plurality of contact members are configured to define a plurality of piercing contacts.

35. (Currently Amended) The test device of Claim 22, wherein the stop comprises a plurality of deformable members connected to the plurality of contact members and extending within at least one of the chambers to contact a portion of the housing when the plurality of contact members are moved toward the a bottom of the at least one chamber a distance that exceeds the predefined level.

36. (Currently Amended) The testing device of Claim 35, wherein the plurality of deformable members comprises a plurality of elastomer members having a height of less than a depth of the at least one chamber.

37. (New) A system for testing electrical components, comprising:

the testing device of Claim 13; and

a plurality of semiconductor devices forming a wafer having a plurality of electrical contacts on a first side, the plurality of electrical contacts comprising substantially every electrical contact on the first side of the wafer.

38. (New) The system of Claim 37, wherein the plurality of electrical contacts are bumps.

39. (New) A device for testing a plurality of semiconductor devices, comprising:

a housing;

a grid comprising a plurality of connected frames within the housing;

at least one flexible membrane extending over the plurality of connected frames to form a plurality of chambers covered by corresponding portions of the membrane, wherein each chamber is configured such that the portion of the at least one flexible membrane over each chamber is sized to contact at most one of the plurality of semiconductor devices;

a plurality of contact members positioned on the at least one flexible membrane and configured to provide electrical connections to a plurality of electrical contacts on the plurality of semiconductor devices tested; and

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at least one fluid channel connecting at least one of the chambers to a fluid source outside the housing to allow a fluid to flow into at least one of the chambers.

40. (New) The device of Claim 39, wherein the at least one flexible membrane comprises a plurality of flexible membranes.

41. (New) The device of Claim 39, wherein the plurality of semiconductor devices comprise an integrated circuit board on chip configuration.

42. (New) The device of Claim 39, wherein the fluid comprises a gas.

43. (New) The device of Claim 42, wherein the fluid comprises air.

44. (New) The device of Claim 39, wherein the fluid comprises a liquid.

45. (New) The device of Claim 39, wherein the fluid source comprises a pump.

46. (New) The device of Claim 45, wherein the fluid source comprises an electric pump.

47. (New) The device of Claim 39, further comprising at least one passage between at least two of the chambers allowing the fluid to flow between the at least two chambers.

48. (New) The device of Claim 39, further comprising at least one stop connected to the at least one flexible membrane to restrict the at least one flexible membrane from recessing beyond a predefined level.

49. (New) The device of Claim 48, wherein the stop comprises a plurality of deformable members connected to the plurality of contact members and extending within at least one of the chambers to contact a portion of the housing when the plurality of contact members is moved toward a bottom of the at least one chamber by a distance that exceeds the predefined level.

50. (New) The device of Claim 49, wherein the plurality of deformable members comprises a plurality of elastomer members having a height of less than a depth of the at least one chamber.

51. (New) The device of Claim 39, wherein the plurality of contact members are bumps.

52. (New) The device of Claim 39, wherein the plurality of contact members are configured to define a plurality of piercing contacts.